

## Math 324 Final Exam Checklist

MATERIAL FROM BEFORE EXAM 2 (See the Exam 1 and Exam 2 checklists slightly more expanded summary of these sections):

1. 15.1, 15.2, 15.3, 15.4: Double Integrals and Computation
2. 15.5: Double and Triple Integral Applications
3. 15.6: Surface Area (which we revisited in more generality in 16.6)
4. 15.7: Triple Integrals
5. 15.8/15.9: Cylindrical and Spherical Coordinates
6. 15.10: Change of Variable
7. 14.5: The Chain Rule
8. 14.6: Directional Derivatives and Gradients
9. 16.1: Introduction to Vector Fields
10. 16.2: Line Integrals
11. 16.3: Conservative Vector Fields
12. 16.4: Green's Theorem
13. 16.5: Curl and Div
14. 16.6: Parameterizing Surfaces

NEW MATERIAL:

1. **16.6: Surface Area and Normal Vectors for Surfaces**
  - Finding normal vectors for surfaces.
  - Finding surface area.
2. **16.7: Surface Integrals**
  - Surface integral for scalar fields using parameterization.
  - Surface integral for vector fields using parameterization.
3. **16.8: Stokes' Theorem**
  - Going from the surface integral of a curl to a line integral on the boundary.
  - Going from a line integral on a closed curve to a surface integral.
4. **16.9: Guass' (Divergence) Theorem**
  - Going from a closed surface integral to a triple integral over the solid interior.